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European CHAFER

... how we fight it



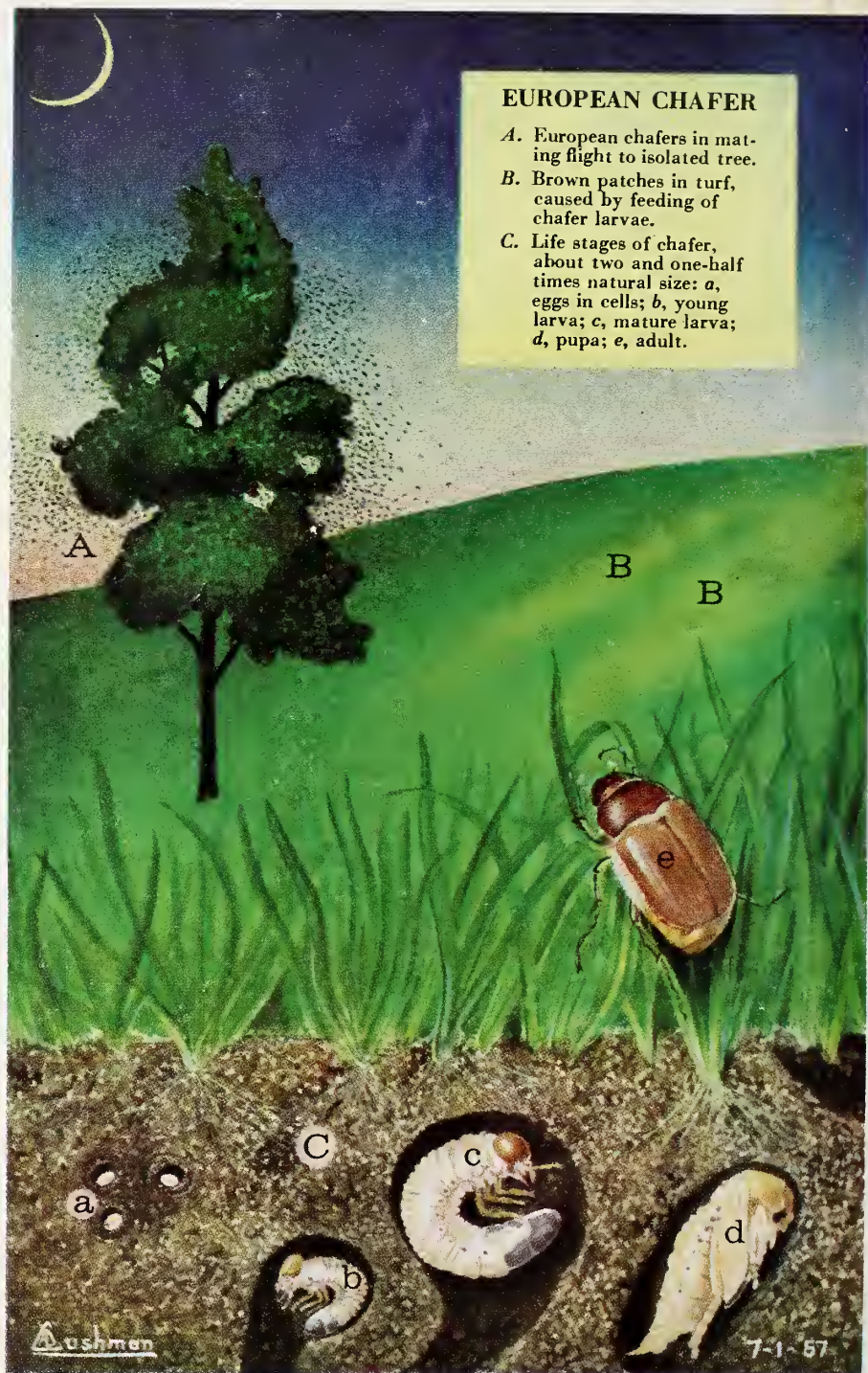
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EUROPEAN CHAFER

- A.* European chafers in mating flight to isolated tree.
B. Brown patches in turf, caused by feeding of chafer larvae.
C. Life stages of chafer, about two and one-half times natural size: *a*, eggs in cells; *b*, young larva; *c*, mature larva; *d*, pupa; *e*, adult.





the
European
CHAFER
... how we fight it

The larvae, or grubs, of the European chafer¹ damage and often destroy lawns, turf, pastures, legumes, and winter grains. They feed on the roots of plants, and create unsightly, barren spots that make the soil subject to rapid erosion. The adults (beetles) of this insect do little feeding, and cause little damage.

OCCURRENCE

The European chafer was first discovered in the United States in Wayne County, N.Y., in 1940. It is believed to have entered this country from Europe in the late 1920's or early 1930's. By the end of 1959 it was known to exist in 10 counties of upstate New York, and in the New York Harbor area, including most of Brooklyn.

In July 1960, the European chafer was found in New Jersey in the Jersey City-Bayonne area of Hudson County, close to infestations at Liberty Island, Ellis Island, Governors Island, and other sites in the New York Harbor area. At that time, it had become es-

tablished also at Niagara Falls, Ontario, Canada. Eradication measures have been applied to small, isolated infestations in Meriden, Conn., and Capon Bridge, W. Va.

During the summer of 1961, infestations were found in three additional counties in upstate New York (Chango, Cayuga, and Oneida) and in Essex, N.J., near the Newark airport. Extensions of infestations occurred along the periphery of known infested areas in Erie, Niagara, and Chemung Counties in upstate New York, and in Hudson County, N.J.

DEVELOPMENT AND HABITS

In its development, the European chafer has four stages—egg, larva (or grub), pupa, and adult (or beetle). The insect is destructive only in the larval stage.

The life cycle usually is completed in 1 year, but occasionally requires 2 years.

In June or July each female beetle lays 20 to 40 milk-white eggs, 2 to 6

¹ *Amphimallon majalis*.

inches deep in the soil. Soon afterward the female dies.

Larvae hatch from the eggs in 2 to 3 weeks; they start immediately to feed on roots of grasses and other plants. When fully grown, in about 3½ months, they are C-shaped, about ¾ inch long, and white; they have brown heads.

Larvae feed throughout summer, and burrow below the frost line in fall. The following spring they come nearer to the surface and resume feeding.

After feeding during spring, most larvae change to pupae. Some spend a second summer in the soil and change to pupae the second spring.

Newly formed pupae are soft bodied and creamy white. They turn reddish brown just before they change to beetles.

The beetles resemble May beetles (also called June beetles). They are oval, about ½ inch long, and light brown or tan. Shallow grooves occur lengthwise on their horny forewings.

In a normal season, beetles emerge from the soil about the middle of June; they appear only for brief mating flights. About sunset on warm days, thousands of these insects swarm like bees around trees, tall shrubs, light poles, or similar objects. They fly for about half an hour, then settle on the objects to mate. At dawn they burrow into the soil, and the females lay their eggs. Mating flights may be repeated several times in a season. The beetles are most abundant from mid-June to July 10.

HOW INFESTATIONS SPREAD

European chafers may fly as far as 2 miles during a mating flight, spreading their infestation over an area

of that radius. The beetles may be carried long distances in automobiles, railway cars, or aircraft. All forms of the insect may be transported from place to place in gravel, soil, and sod, and among roots of plants to which soil is attached.

QUARANTINES

Areas infested with the European chafer are under a Federal quarantine designed to prevent interstate spread of the insect. Similar State quarantines are in force to prevent spread within State borders.

Where quarantines are in force, a certificate is required for the shipment of articles that might harbor the eggs, larvae, pupae, or beetles of the chafer. Such articles include sod, topsoil, gravel, sand, and plants with soil on the roots. Certificates are required to ship previously infested articles after they have been made free of infestation by the use of insecticides or by other approved means.

Information about State and Federal quarantine regulations may be obtained from State departments of agriculture, county agricultural agents, or plant pest control offices of the U.S. Department of Agriculture.

DETECTING INFESTATIONS

The best way to detect infestations is to watch for larvae in sod, and for mating flights of the beetles during June and July.

Signs that the European chafer may be present include—

- Large numbers of beetles “swarming” about trees, shrubs, or light poles during evening hours in June or early July.

- Dead or dying spots in lawns, in turf of golf courses, cemeteries, pastures, or in fields of winter grains.

- White larvae feeding on the roots of plants around the edges of bare spots in sod or fields of grain.

- Loosened soil in bare spots of sod, indicating that birds, moles, skunks, or other animals have been digging for larvae.

These signs may indicate only the *possibility* of European chafer infestation. They could also indicate presence of the Japanese beetle or the May beetle. All three insects are destructive.

HOW YOU CAN HELP

State and Federal agricultural agencies use measures to control the European chafer wherever its presence is detected. Entomologists of these agencies make annual surveys to locate infestations and determine the extent of the chafer's spread. You can help to detect and control the insect if you—

- Watch for signs of this pest in your area. Collect specimens of larvae or beetles in rubbing alcohol and give or mail them promptly to your county agent, to your State entomologist, to a local plant pest control representative, or to the Plant Pest Control Division, U.S. Department of Agriculture, Washington 25, D.C. Include your name and address, the date you collected the specimens, and a note stating that they may be the European chafer. *Do not send live specimens through the mail.*

- Apply insecticide if you discover an infestation on your property.

- Comply with State and Federal regulations governing the movement of articles from infested areas.

- Cooperate with local plant pest control officials in controlling infestations.

- Persuade your neighbors to co-

operate in detecting evidence of the pest and reporting suspected infestations.

CONTROL WITH INSECTICIDE

The only practical way to control the European chafer is to kill the larvae by applying insecticide to the soil. Wettable powders, dusts, or granules may be used. A single application will give satisfactory control for at least 3 years.

Caution: Pasture, grain, or hay land requires special treatment to prevent leaving dangerous insecticide residues. Before applying insecticide to such areas, get the recommendations of your State or Federal plant pest control inspector or State experiment station. Follow instructions on insecticide container labels.

Treating Large Areas

To treat large areas of nonagricultural land, apply dieldrin, aldrin, or heptachlor at the rate of 3 pounds of actual insecticide per acre; or, apply chlordane at the rate of 10 pounds per acre.

Purchased products may contain 5 to 50 percent of actual insecticide. Refer to container labels to learn the strength of the products you buy.

Treating Small Areas

Recommendations by various States may differ slightly with respect to materials and dosages. However, insecticides listed in the accompanying guide² will give satisfactory control if applied as indicated. The areas should be watered but not flooded after insecticide has been applied.

² Partially based on research by Cornell University, Geneva and Ithaca, N.Y.

Guide for applying insecticide to control the European chafer in lawns, turf, and other nonagricultural land

Insecticide	Amount to apply to 1,000 square feet			
	Wettable powder		Dust or granules	
	25 percent	50 percent	5 percent	10 percent
			<i>Pounds</i>	<i>Pounds</i>
Dieldrin.....	5 ounces...	2½ ounces...	1½.....	¾
Aldrin.....	5 ounces...	2½ ounces...	1½.....	¾
Heptachlor.....	5 ounces...	2½ ounces...	1½.....	¾
Chlordane.....	1 pound...	½ pound...	5.....	2½

PRECAUTIONS

Insecticides are poisonous; handle them with care. Follow the directions and heed all precautions on container labels. Keep insecticides in closed, well-labeled containers, in a dry place where they will not contaminate food or feed, and where children and pets cannot reach them.

Do not wear insecticide-contaminated clothing. Avoid repeated or prolonged contact of insecticide with the skin. Do not inhale dusts or mists. Wash hands and face before eating or smoking.

When handling concentrates, avoid spilling them on the skin, and keep them away from the eyes, nose, and mouth. If you spill a concentrate on the skin or clothing, wash it off and change

clothing immediately. If you get it in your eyes, flush them with plenty of water for 15 minutes and get medical attention.

Do not apply insecticide to a lawn or pasture when people or animals are on it. Do not let insecticide drift to an area where it might injure people or animals.

To protect fish and wildlife, do not contaminate streams, lakes, or ponds with insecticide.

Prepared by
Plant Pest Control Division
Agricultural Research Service
Washington, D.C. Revised July 1962



